Amendments to the Specification:

Please replace the paragraph starting on line 25 of page 17 and ending on line 27 of page 17 with the following amended paragraph:

$$\cancel{|I| = \sum_{n\in\{A\}} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in\{3A\}} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

$$\underline{|I| = \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

$$\cancel{|Q| = \sum_{n\in\{A\}} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in\{3A\}} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

$$\underline{|Q| = \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

<u>wherein n is from 1 to the number of symbols constituting the packet.</u>

. . . . . (18)

Please replace the paragraph starting on line 30 of page 17 and ending on line 22 of page 18 with the following amended paragraph:

The reason for calculating absolute values of a real part and an imaginary part of the channel compensation signal in Equation (18) is because when absolute values are calculated on the constellation, all symbols can be classified into A and 3A. In Equation (18), n represents an order of a corresponding symbol among symbols constituting one packet, and the n has a value of 1 to the number of symbols constituting the packet, for example, a value of 1 to 480. The number of symbols constituting one packet is assumed to be 480 because a communication system employing high speed downlink packet access (hereinafter referred to as an "HSDPA communication system"), which is a communication system for high-speed data transmission, generally transmits 480 symbols per packet by using a spreading factor (SF) of SF=16. In addition, since the number of symbols constituting one packet is 480, 160 symbols are transmitted for each time slot. 160 symbols are transmitted for each time slot because in the HSDPA communication system, one Transmission Time Interval (TTI) is comprised of 3 time slots. When the real part and the imaginary part shown in Equation (18) each are continuously

sorted from their minimum value to maximum value and then the sorted values are divided into a predetermined number of predetermined lengths. For example, the sorted values may be divided into two equal parts. Further, it is possible to separate the sorted values into smaller values and larger values. A reference point where the sorted values are halved becomes a point where the number of symbols within one packet becomes 1/2. That is, since the invention is applied to the HSDPA communication system, a boundary point between a 240th symbol and a 241st symbol among 480 symbols becomes the reference point. The reference point may be preset. In addition, when the sorted values are divided into two equal parts, a part where the smaller values exist will be defined as "low_part," while a part where the larger values exist will be defined as "high_part."

Please replace the paragraph starting on line 24 of page 21 and ending on line 3 of page 22 with the following amended paragraph:

The effective length is a length (or section) where statistics are taken on a smaller-than-1/2 number of the symbols within one packet so that excesses of outer symbols occurred due to the unequal average power problem should not be included in the low_part. That is, the effective length is a length where statistics are taken on a length shorter than 1/2 of a length of symbols within one packet. That is, as illustrated in FIG. 5, a smaller-than-1/2 number of symbols within one packet are selected as an effective length. However, when the effective length is lengthened, randomness of the statistic process is increased. In contrast, when the effective length is shortened, it is possible to solve the unequal average power problem by removing all excesses of the outer symbols, which vary per packet. Therefore, the effective length should be set to a length that does not lower randomness of the statistic process while removing excesses of the outer symbols. Further, the effective length may comprise a preset length.

Please replace the paragraph starting on line 5 of page 24 and ending on line 14 of page 24 with the following amended paragraph:

The sorter 505 receives absolute values ~~$\sum_{n\in(A)}\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in(3A)}\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|$~~ $\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$ of the I channel component, output from the absolute value generator 501, continuously sorts the absolute values from a minimum value to a maximum value according to their magnitude, and then provides the sorted absolute values to the integration and dump section 509. Similarly, the sorter 507 receives absolute values ~~$\sum_{n\in(A)}\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in(3A)}\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|$~~ $\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$ of the Q channel component, output from the absolute value generator 503, continuously sorts the absolute values from a minimum value to a maximum value, and then provides the sorted absolute values to the integration and dump section 511.

Please replace the paragraph starting on line 17 of page 24 and ending on line 7 of page 25 with the following amended paragraph:

The integration and dump section 509 classifies the values determined by sorting the absolute values output from the sorter 505, i.e., absolute values of the I channel component, from a minimum value to a maximum value according to their magnitudes, into $(low\_part)_I$ and $(high\_part)_I$, considers only the $(low\_part)_I$, takes an effective length $(low\_part_{eff})_I$ having a ~~predetermined extent~~ <u>preset length</u> in the $(low\_part)_I$, performs integration and dump on the effective length $(low\_part_{eff})_I$, and then provides the integration and dump result to the divider 513. The integration and dump section 511 classifies the values determined by sorting the absolute values output from the sorter 507, i.e., absolute values of the Q channel component, from a minimum value to a maximum value according to their magnitudes, into $(low\_part)_Q$ and $(high\_part)_Q$, considers only the $(low\_part)_Q$, takes an effective length $(low\_part_{eff})_Q$ having a ~~predetermined extent~~ <u>preset length</u> in the $(low\_part)_Q$, performs integration and dump on the

effective length $(low\_part_{eff})_Q$, and then provides the integration and dump result to the divider 515. The divider 513 divides a value output from the integration and dump section 509 by the ~~extent~~ length N of the effective length and provides the division result to the adder 517. The divider 515 divides a value output from the integration and dump section 511 by the ~~extent~~length N of the effective length and provides the division result to the adder 517. The adder 517 generates average power, $E\{(low\_part_{eff})_I\} + E\{(low\_part_{eff})_Q\}$, of the effective length for which both the I channel component and the Q channel component were considered, by adding an output value of the divider 513 to an output value of the divider 515, and provides the generated average power to the divider 519.

Please replace the paragraph starting on line 8 of page 25 and ending on line 17 of page 25 with the following amended paragraph:

The divider 519 calculates a 1/2 value of the average value. To do so, the divider 519 divides the average power $E\{(low\_part_{eff})_I\} + E\{(low\_part_{eff})_Q\}$ of the effective length, output from the adder 517, by 2A, and then provides the division result to the power ratio generator 521. The divider 519 divides the average power $E\{(low\_part_{eff})_I\} + E\{(low\_part_{eff})_Q\}$ of the effective length, output from the adder 517, by 2A because the I component and the Q component are considered as mentioned above. In addition, the reason is to calculate other terms except the A terms from the average power of the effective length. The squarer 523 takes an absolute value of a channel estimation signal $(A_p\alpha e^{-j\theta})^*$ output from the channel estimator 330, squares the absolute value, and outputs the squared absolute value to the power ratio generator 521.

Please replace the paragraph starting on line 21 of page 27 and ending on line 6 of page 28 with the following amended paragraph:

FIG. 6 is a flowchart illustrating an example of a procedure for detecting a power ratio between a traffic channel and a pilot channel according to an embodiment of the present invention. Referring to FIG. 6, in step 611, the power ratio detector 340-1 receives a channel compensation signal $|\alpha|^2A_dA_pS_d+N'$ output from the channel compensator 320 and a channel

estimation signal $(A_p \alpha e^{-j\theta})^*$ output from the channel estimator 330, and then proceeds to step 613. In step 613, the power ratio detector 340-1 separates the channel compensation signal $|\alpha|^2 A_d A_p S_d + N'$ into a real part, or I channel component, and an imaginary part, or Q channel component, and then proceeds to step 615. In step 615, the power ratio detector 340-1 takes absolute values of the separated I channel component $(|\alpha|^2 A_d A_p S_{d_I} + N_I')$ and the separated Q channel component $j(|\alpha|^2 A_d A_p S_{d_Q} + N_Q')$, and then proceeds to step 617. In step 617, the power ratio detector 340-1 receives absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$ of the I channel component and absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$ of the Q channel component, continuously sorts the absolute values from a minimum value to a maximum value according to their magnitudes, and then proceeds to step 619.

Please replace the paragraph starting on line 24 of page 31 and ending on line 8 of page 32 with the following amended paragraph:

The integration and dump section 805 performs integration and dump on absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$ of the I channel component, output from the absolute value generator 801, and provides its output to the divider 809. Similarly, the integration and dump section 807 performs integration and dump on absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$ of the Q channel component, output from the absolute value generator 803, and provides its output to the divider 811. The divider 809 divides a signal output from the integration and dump section 805 by the number N of symbols constituting the frame, and provides the division result to the adder 813. The divider 811 divides a signal output from the integration and dump section 807 by the number N of symbols constituting the frame, and provides the division result to the adder 813. Here, the reason why the dividers 809 and 811 divide the signals output from the integration and dump sections 805 and 807 by the N is to calculate average power in the frame section.

Please replace the paragraph starting on line 10 of page 32 and ending on line 15 of page 32 with the following amended paragraph:

Meanwhile, since $|S_{d_I}|, |S_{d_Q}| \in \{A, 3A\}$ as stated above, when there is no noise, |I| and |Q| are always positive numbers. The |I| and |Q| are expressed as

$$\cancel{|I| = |Q| = \sum_{S_{d_I} \in A} (|\alpha|^2 A_d A_p A) + \sum_{S_{d_I} \in 3A} (|\alpha|^2 A_d A_p 3A)}$$

$$\underline{|I| = |Q| = (|\alpha|^2 A_d A_p A) + (|\alpha|^2 A_d A_p 3A)}$$

$$\text{mean}(|I|) = \text{mean}(|Q|) = |\alpha|^2 A_d A_p 2A \qquad \ldots\ldots (24)$$

Please replace the paragraph starting on line 16 of page 33 and ending on line 4 of page 34 with the following amended paragraph:

FIG. 9 is a flowchart illustrating an example of a procedure for detecting a power ratio between a traffic channel and a pilot channel according to an embodiment of the present invention. Referring to FIG. 9, in step 911, the power ratio detector 340-2 receives a channel

compensation signal $|\alpha|^2 A_d A_p S_d + N'$ output from the channel compensator 320 and a channel estimation signal $(A_p \alpha e^{-j\theta})^*$ output from the channel estimator 330, and then proceeds to step 913. In step 913, the power ratio detector 340-2 separates the channel compensation signal $|\alpha|^2 A_d A_p S_d + N'$ into a real part, or I channel component, and an imaginary part, or Q channel component, and then proceeds to step 915. In step 915, the power ratio detector 340-2 takes absolute values of the separated I channel component $(|\alpha|^2 A_d A_p S_{d_I} + N_I')$ and the separated Q channel component $j(|\alpha|^2 A_d A_p S_{d_Q} + N_Q')$, and then proceeds to step 917. In step 917, the power ratio detector 340-2 receives absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$ of the I channel component and absolute values

$$\cancel{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

$\underline{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$ of the Q channel component, detects average power of the I channel component and average power of the Q channel component, and then proceeds to step 919.

Please replace the paragraph starting on line 16 of page 33 and ending on line 4 of page 34 with the following amended paragraph:

FIG. 10 is a flowchart illustrating another example of a procedure for detecting a power ratio between a traffic channel and a pilot channel according to an embodiment of the present invention. Referring to FIG. 10, in step 1011, the power ratio detector 340-3 receives a channel compensation signal $|\alpha|^2 A_d A_p S_d + N'$ output from the channel compensator 320 and a channel estimation signal $(A_p \alpha e^{-j\theta})^*$ output from the channel estimator 330, and then proceeds to step 1013. In step 1013, the power ratio detector 340-3 separates the channel compensation signal $|\alpha|^2 A_d A_p S_d + N'$ into a real part, or I channel component, and an imaginary part, or Q channel component, and then proceeds to step 1015. In step 1015, the power ratio detector 340-3 takes

absolute values of the separated I channel component $(|\alpha|^2 A_d A_p S_{d_I} + N_I')$ and the separated Q channel component $j(|\alpha|^2 A_d A_p S_{d_Q} + N_Q')$, and then proceeds to step 1017. In step 1017, the power ratio detector 340-3 receives absolute values

$$\frac{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_I'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_I'(n)\right|}$$

of the I channel component and absolute values

$$\frac{\sum_{n\in(A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \sum_{n\in(3A)} \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}{\left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot A + N_Q'(n)\right| + \left|\left(|\alpha(n)|^2 A_d A_p\right)\cdot 3A + N_Q'(n)\right|}$$

of the Q channel component, continuously sorts the absolute values from a minimum value to a maximum value according to their magnitudes, and then proceeds to step 1019.